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*September 10, 2004*

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FILING DATE: *August 20, 2003*

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Certified by



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17638 U.S. PTO  
08/20/03

PTO/SB/16 (08-03)  
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**PROVISIONAL APPLICATION FOR PATENT COVER SHEET**

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

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Additional inventors are being named on the <u>One</u> separately numbered sheets attached hereto					
TITLE OF THE INVENTION (500 characters max)					
inline processing and irradiation system					
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ENCLOSED APPLICATION PARTS (check all that apply)					
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<input type="checkbox"/> Application Date Sheet. See 37 CFR 1.76					
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT					
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.				FILING FEE Amount (\$)	
<input type="checkbox"/> A check or money order is enclosed to cover the filing fees.				<div>\$160</div>	
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The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
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Respectfully submitted,

SIGNATURE

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(Page 1 of 2)

Date 8/20/03

REGISTRATION NO. \_\_\_\_\_

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[Page 2 of 2]

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## **Inline packaging and irradiation system**

### **Description of the Invention**

The present invention provides a inline solution for the packaging and irradiation of products.

This invention allows for the use of packaging raw materials and the loading of products into a single layer/ multiple array loaded format. This product array is sealed and irradiation treated. Product is then discharged as finished good product.

The invention is directed to the use of electron beam or x-ray treatment of materials or products in conjunction with a packaging system. The electron beam or x-rays being of sufficient energy to penetrate the single layer of packages as they are presented directly from the packaging system. This invention incorporating the electron beam or x-ray system and the packaging system together allows for presentation of the products to be processed in a single or a multiple array of packages which provides a unique advantage to delivering the irradiation treatment energy more uniformly throughout the product. This represents a very efficient method for energy capture and provides an in-line process solution that has very distinct advantages over bulk product processing solutions. The invention permits the use of lower power electron beam and x-ray systems which allows the system to be configured on a smaller footprint which is key in implementing this as an in-line processing solution.

This invention provides a method for the processing of materials as individual devices or packages. In doing so the delivered dose through each product is more predictable as the repeatability in both orientation and form of individual product to product is very high. This single level or a multiple array of products presentation is easier to penetrate and thus requires a lower energy from the delivery electron accelerator or x-ray system which allows for a small configuration to be designed. This method of processing materials as individual items also provides a means to minimize the amount of scrap or rejects packages that come off of the line as a result of problems in the process, where the previous art scraps boxes of product this process allows for scrapping individual packages thus reducing cost of scrap. This inline process allows the opportunity for individual product identification and or tracking from process start to finish.

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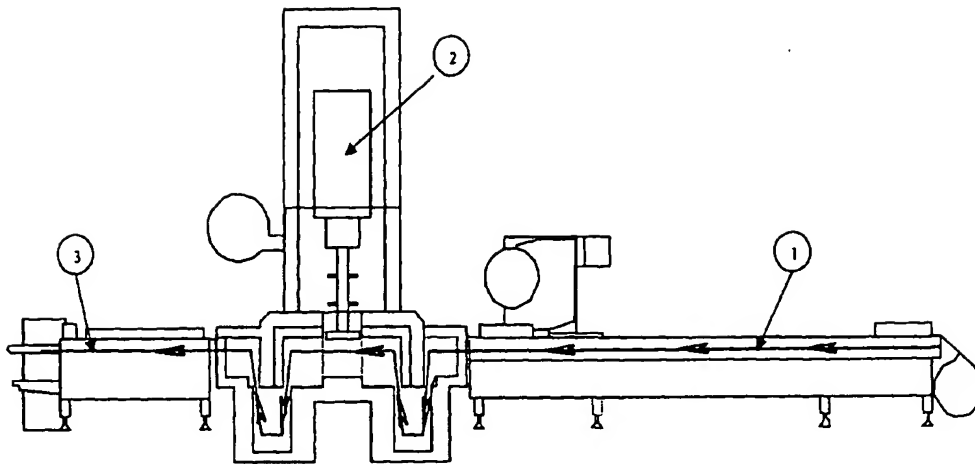


Figure 1

1. Infeed package loading and sealing system
2. Irradiation equipment
3. Packaged product discharge

Figure 1 is one example of the embodiment of the present invention for inline packaging and irradiation of products

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